



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 10/605,610  | 10/13/2003  | Donald J. Delehanty  | FIS920020214         | 2609             |
| 32074   | 7590        | 10/06/2005           | EXAMINER             |                  |
| INTERNATIONAL BUSINESS MACHINES CORPORATION<br>DEPT. 18G<br>BLDG. 300-482<br>2070 ROUTE 52<br>HOPEWELL JUNCTION, NY 12533 |             |                      | GEORGE, PATRICIA ANN |                  |
|   |             |                      | ART UNIT             | PAPER NUMBER     |
|   |             |                      | 1765                 |                  |
| DATE MAILED: 10/06/2005   |             |                      |                      |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/605,610

Applicant(s)

DELEHANTY ET AL.

Examiner

Patricia A. George

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 4 and 19-21 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/07/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 4, and 19-21 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 22 September 2005.

### ***Amendments***

Amendments were received and are acknowledged.

### ***Claim Objections***

Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The upper limit of the range stated in claim 5 (12), is outside of the upper limit of the independent claim 1 (11).

Claim 9 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should *--should refer to other claims in the alternative only--*. See MPEP § 608.01(n). Accordingly, claims 9-11 have not been further treated on the merits. Claims 10-11 are also objected to as being in improper form, as they depend on claim 9.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 5, 7, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Gorantla et al. of US 2004/0127045.

Gorantla et al. discloses an aqueous composition for CMP of a film using, a fixed polishing pad (para.16). In figure 2, described in paragraphs 29-31, Gorantla illustrates the composition (23) between the pad (22) and the wafer surface (20), with pH of between 3 and 5 or between 9 and 12 (para.18). In paragraph 44, Gorantla teaches chemistry of maintaining the pH and that it is maintained by lowering or raising through use of agents such as acids and bases, including carbonates such as ammonium or potassium hydroxide, and stabilizers such as amino acids (para.25, l.13). See the arrow in figure 2, which illustrates Gorantla's teaching of the wafer moving relative to the pad. The references above are written on all the limitations of claims 1, 2, 5, 7, and 8.

As to claim 3, Gorantla teaches polishing is performed with a fixed abrasive polishing pad (para. 11, l.7-8).

As to claim 5, see discussion above.

As to claims 7, and 8, see discussion above.

As to claim 12, Gorantla teaches a fixed abrasive component of said polishing pad includes alumina, and ceria (see example 7, SWR 159, 176, and 192 are made of both alumina and ceria particles.).

As to claim 13, Gorantla teaches a polishing pad is moved in a linear direction relative to said substrate (para.31).

As to claims 14 and 15, Gorantla teaches the substrate consists of an oxide-filled Shallow Trench Isolation structure (para.24), that has silicon nitride (para. 24, l.7 and fig. 1, 13) underlying the top silicon dioxide (para.24, l.13 and fig.1, 15) layer. The excess oxide is removed and the trench planarized (para.6, l.9-13), and the silicon nitride acts as a stop layer (para.7, l.3), which is written on polishing is performed to expose a second layer underlying said first layer, as in claim 14, and first layer comprises an oxide of silicon, said second layer comprises silicon nitride and said polishing is performed until said first layer is planarized to a level of said second layer, as in claim 15.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1765

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorantla et al. of US 2004/0127045 (see above) in view of Prasad of US 6,913,517.

Gorantla does not teach slurry stabilizers, as in claim 6.

Prasad teaches polishing pads, and the use of slurry stabilizers, such as polyacrylic acid (col.8, l.25), as in claim 6.

It would have been obvious to one of ordinary skill in the art at the time of invention was made, to use the polishing pad with stabilizers, of Prasad, when using a method of polishing, as Gorantla, because Prasad teaches pads which can be produced at a low cost, and require little to no conditioning after installation, which improve the process and save money.

As for claims 16 – 18, all limitations are discussions above.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 20030219982 teaches use of water-soluble polymers, for CMP, such as: L-proline, glycine, lysine, and polyacrylic acid.

Art Unit: 1765

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia A. George whose telephone number is (571)272-5955. The examiner can normally be reached on weekdays between 7:00am and 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571)272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patricia A George  
Examiner  
Art Unit 1765

  
PAG  
09/05

NADINE G. NORTON  
SUPERVISORY PATENT EXAMINER

